DRAFT

March 9, 2007

Ms. Wendy Wyles, Supervisor
Title 27 and WDR Units
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

SUBJECT: Comments on Regional Water Quality Control Board's Water Balance for the City of Lakeport Municipal Sewer District's Wastewater Treatment Facility

Dear Ms. Wyles:

The City of Lakeport Municipal Sewer District ("CLMSD") received the Central Valley Regional Water Quality Control Board ("Regional Board") staff's water balance for the CLMSD's Wastewater Treatment Facility ("WWTF") on February 28, 2007, via electronic mail. This water balance was also described to us in a conference call on March 2, 2007. Thank you for providing us the opportunity to comment.

I. Process Comments

As a preliminary matter, CLMSD has certain concerns regarding the timeline and process associated with the water balance currently in question, and the implications for CLMSD.

In September of 2006, CLMSD submitted a water balance prepared by PACE Civil. After submittal of the water balance, CLMSD did not receive subsequent communications from the Regional Board staff regarding the specific elements of the water balance or the assumptions contained therein. Based on the water balance submitted by CLMSD, the Regional Board staff issued a draft Cease and Desist Order ("CDO") and a Notice of Connection Restriction on January 18, 2007. The connection restriction was based on a definition of average dry weather flow ("ADWF") in the cease and desist order as compared to CLMSD's water balance.

On February 9, 2007, CLMSD representatives provided Regional Board staff with an issue paper that outlined concerns with the CDO's determination of ADWF and its impact on the determination of capacity. In particular, CLMSD's issue paper indicated that capacity was available based on a correct interpretation of ADWF as compared to the WWTF capacity as calculated in the PACE report submitted in September of 2006. The issue paper was provided in advance of a meeting scheduled with Regional Board staff on February 13, 2007 as a courtesy, so that the meeting discussion could be focused on the capacity issues.

At the February 13, 2007 meeting, Regional Board staff then indicated that CLMSD's water balance, as prepared by PACE and submitted in September, may not be consistent with the Regional Board's own methodologies used in the preparation and review of water balances for wastewater treatment facilities. Regional Board staff then indicated that it would be necessary for the Regional Board's engineering staff and the CLMSD's engineering consultant to communicate regarding revisions to the PACE water balance and the Regional Board's preparation of its own water balance. PACE, at CLMSD's direction, submitted a revised water balance on February 23, 2007, using different assumptions based on discussion with Regional Board staff. The water balance discussed below is the Regional Board staff's water balance that was provided to CLMSD on February 28, 2007.

CLMSD would be remiss if it did not express its concerns regarding discussions related to the water balance. CLMSD understands that calculation of a water balance for a wastewater treatment facility has many different elements. CLMSD also understands that different engineers may use different methodologies for arriving at the assumptions that are contained in a water balance. CLMSD, however, submits that the appropriate time for these discussions is before the Regional Board staff issues a connection restriction. Unfortunately, CLMSD, its engineers and the engineers at the Regional Board have been put in the unenviable position of discussing complex engineering issues of tremendous import to the City of Lakeport just two weeks prior to a public hearing on a building moratorium that would apply to the City of Lakeport.

Despite these major and fundamental concerns, CLMSD continues to work in good faith with the Regional Board staff on issues pertaining to the water balance and here provides specific comments on the Regional Board staff's water balance as provided to CLMSD on February 28, 2007.

II. Comments on Water Balance

With regard to the water balance provided to CLMSD on February 28, 2007, we have some general concerns with its methodologies. We believe the water balance provided by CLMSD to the Regional Board in September is a sound engineering study that reflects professional judgment in accordance with industry standards. The February 28, 2007 water balance reflects a number of different assumptions that we believe, and many would contend, are overly conservative. For example, the Regional Board staff estimates inflow and infiltration ("I/I") based on precipitation projected out to a 100-year storm event. This is an unlikely occurrence that does not reflect current I/I within the City's collection system.

A. Operating Storage Volume in Reclaimed Water Storage Reservoir

The Technical Report prepared by PACE Civil presented a water balance based upon a 100-year event with the storage reservoir starting with 100 acre-feet at the end of September. The storage reservoir was only allowed to add 500 acre-feet to the operating storage volume before it would reach an elevation that is two feet below the spillway or 600 acre-feet.

The CLMSD Waste Discharge Requirements Order No. 98-207 states that the effluent reservoir freeboard shall never be less than two feet measured at the spillway except during years equaling or exceeding the precipitation of a 100-year return period. (WDR Order No. 98-207.) Given that the water balance models the 100-year event, CLMSD should be allowed to utilize the two feet of freeboard leading up to the spillway, which adds another 50 acre-feet of storage to the water balance for a total of 650 acre-feet of operating storage volume.

The 100-year event water balance presented by Regional Board staff on February 28, 2007, assumes the same starting volume of 100 acre-feet and final storage volume of 600 acre-feet.

Over the past two years (2005 and 2006), the volume of wastewater in the storage reservoir was at 100 and 110 acre-feet at the end of September, respectively. By the end of October, the volume in the reservoir was at 70 acre-feet. CLMSD staff would note that additional reclaimed water could have been removed from the reservoir but that there was no necessity to get the volume remaining in the reservoir to 50 acre-foot or below. Thus, the volume of wastewater in storage reflected operational decisions and not merely the facility's capacity for utilizing more wastewater for irrigation prior to the wet season.

In short, operations of the WWTF can be altered so that there is 50 acre-feet of wastewater remaining in the reservoir by the end of October. With this as the starting point, the water balance should be revised to start at 50 acre-feet and thus factor in an additional 50 acre-feet of operating volume.

It is also understood that the reasons given by Regional Board staff for having the two feet of freeboard below the spillway is to provide for a wind driven splash zone and therefore prevent overtopping caused by the splashing. Removable splash boards could be installed to address the potential splashes from topping the spillway. This concept would need to be agreed upon by the Division of Dam Safety but would allow for additional capacity in the reservoir. CLMSD does not believe that there are safety concerns with this approach.

In fact, CLMSD is uncertain as to where the Regional Board derives its authority for the requirement to not operate in the zone that is two feet below the spillway. To our knowledge, it is not an adopted regulatory requirement but appears to be an unwritten policy statement. CLMSD contends that the Regional Board should avoid regulating dischargers based on un-adopted policy statements.

B. Central Tendency Line vs. Upper Limit Line

PACE and Regional Board staff agree that I/I has the largest variable impact upon available storage volume. The PACE 100-year water balance projected a total of 265 acre-feet of I/I for an average dry weather flow (ADWF) of 0.415 MGD as compared to the Regional Board estimate of 290 acre-feet for an ADWF of 0.35 MGD.

The PACE estimate is based upon an increase in historic I/I from 2003 to 2005 proportionate to the projected increase in ADWF for the months of August through October. This equates to a normalized I/I component of 208 MG of I/I per MGD of ADWF.

Regional Board staff determined a normalized I/I component of 270 MG of I/I per MGD of ADWF based upon the upper limit line for three years of data projected out to the 100-year event. We have several concerns with the data set, which might result in overreaching safety factors built into the I/I projections:

1) The upper limit line is predicated on the slope of the central tendency line, which relies on three data points from three rain years. Regional Board staff and PACE have both taken the precautions to use data from years that are now typical of the flow entering the CLMSD WWTF (i.e. without Ashe Street Lift Station and without the Willow Point cleanout problem). Unfortunately, this limits the data set to only three years, which does not provide for a statistically defensible data set.

The Regional Board staff indicated that it relied on a guidance document from the State Water Resources Control Board in preparing the February 28, 2007 water balance. (*Training Handbook for Disposal of Non-Designated Waste to Land Systems: Design, Operation, and Monitoring*, ECO:Logic June 2004.) A relevant excerpt from this document states:

> Both the "upper limit line" and the "central tendency line" are used in the preparation of various types of water balances. The point where the "upper limit line" crosses the "design precipitation line" is typically used in water balances prepared for design purposes …
>
> The point where the "central tendency line" crosses any precipitation line can be useful in assessing facility performance under any normal to wet

> year of interest. The "central tendency line" provides a "best estimate" of the amount of normalized precipitation dependent I/I volume that will occur for a given amount of total precipitation.

The central tendency line gives a 50th percentile estimate of I/I based upon precipitation (i.e. 50% of the events will be greater and 50% will be less). The upper limit line provides a rough estimate that 90% of the events will be less than the estimate. When establishing the central tendency line, the guidance document states that "[t]he designer must use judgment in establishing an appropriate and defensible rational 'central tendency line.'" (*Training Handbook* at p. 6-5.) The guidance document also states that "[u]sing a 'least squares' statistical model to generate the 'central tendency line' is not recommended." (*Training Handbook* at p. 6-4.)

When a limited data set is used to project the central tendency line (which is then used to establish the upper limit line), it appears to result in a determination that there is no available storage capacity in the facilities. CLMSD contends that this is not an appropriate and defensible central tendency line. In the alternative, CLMSD recommends that the central tendency line projected to the 100-year rain event would provide for a reasonable estimate of the I/I contribution instead of using the upper limit line, which adds safety factor upon safety factor.

C. ADWF Defined

PACE and Regional Board staff have come to agreement on a definition for ADWF to equal the average of the months of August, September, and October. Clear Lake water level certainly impacts I/I. As lake water level lowers at the end of the year, I/I drops off. The ADWF should be used to calculate the ADWF/Residential Unit Equivalent. This ADWF definition must be added to the CDO and any future WDR for the CLMSD WWTF.

D. I/I Contribution from Proposed Subdivisions

I/I contribution from newly constructed subdivisions will not be as significant in the near term as that from the existing collection system. Thus, I/I estimates for new facilities should not be based on existing system operations. Also, new subdivisions help to provide CLMSD with funding that is necessary to improve older portions of the City's collection system.

III. Conclusion

CLMSD is very concerned with the process that led to establishment of a connection restriction. Despite this unfortunate turn of events, CLMSD appreciates the Regional

Board staff's efforts to work with CLMSD and its engineers and the Board staff's willingness to consider our comments.

We look forward to hearing your thoughts on our specific comments to the water balance.

Sincerely,

Richard Knoll
Acting City Manager/Community Development Director
City of Lakeport

cc: Kenneth Landau, Assistant Executive Officer
Mark List, Chief, Waste Discharge to Land Unit

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